



## Estimated Incomes of Selected Australian Families: 1995-96 to 2008-09

### Technical Note

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## CONTENTS

<b>About NATSEM</b>	<b>2</b>
<b>Author note</b>	<b>4</b>
<b>General caveat</b>	<b>4</b>
<b>1 Background</b>	<b>5</b>
<b>2 Methodology</b>	<b>5</b>
1. STINMOD	5
2. Family characteristics	6
3. Private incomes	6
<b>3 Table notes</b>	<b>7</b>
<b>References</b>	<b>8</b>

## **AUTHOR NOTE**

Quoc Ngu Vu is a senior research fellow and Richard Percival a principal research fellow at NATSEM.

## **GENERAL CAVEAT**

NATSEM research findings are generally based on estimated characteristics of the population. Such estimates are usually derived from the application of microsimulation modelling techniques to microdata based on sample surveys.

These estimates may be different from the actual characteristics of the population because of sampling and nonsampling errors in the microdata and because of the assumptions underlying the modelling techniques.

The microdata do not contain any information that enables identification of the individuals or families to which they refer.

## 1 BACKGROUND

NATSEM was asked by IPART to provide a time series (from 1992 to the present) of four income variables (private income; transfer income; income tax; and disposable income) for the following hypothetical families:

- Single aged pensioner;
- Couple aged pensioner; and,
- “Supported” sole parent, with two children aged 7 and 5.

For each of these families, separate scenarios were requested for renters and non-renters.

This technical note describes the methodology used to estimate the incomes of the hypothetical families and provides some explanatory notes for the income tables produced using the methodology.

## 2 METHODOLOGY

### 1. STINMOD

The incomes for the families were estimated using various versions of STINMOD, NATSEM’s static microsimulation model of tax and transfer payments in Australia (see Vu 2008 for a description of STINMOD). This model was first developed in 1994 and has been continuously updated since. It is used to estimate the aggregate fiscal impact of a change in tax and/or transfer policy on revenue or government expenditure, as well as to estimate the distributional impacts of policy change on families and individuals.

STINMOD model can also be used to assess the impact of tax and/or transfer policy on a number of hypothetical families, which are created by the users.

This study uses this second facility of STINMOD to estimate the incomes of the hypothetical families. The simulation process first defines the families and then runs each through the tax and transfer modules of the different versions of STINMOD. Using the private incomes and characteristics of the families’ members, STINMOD calculates their government transfer payments they are eligible for the amount of income tax for which they are liable.

It is important to note that though these STINMOD versions are intended to replicate the tax and transfer policy setting for a financial year, STINMOD, like all similar models, does not capture every aspect of the world it represents. This is most often due to a lack of sufficient information to allow particular payments or taxes to be modelled. In addition, not every aspect and characteristic of the family can be

created, and so the family may not be entitled to a particular payment that would otherwise have been available to them had that aspect or characteristic been created.

Using the most current and earlier versions of STINMOD, family incomes were able to be estimated for the following periods: 1995/96, 1997/98, 1998/99, 2000/01, 2001/02, 2003/04, 2005/06, 2007/08, and 2008 /09.

## 2. FAMILY CHARACTERISTICS

The main characteristics of the three hypothetical families are listed in Table 1 below

**Table 1: Main characteristics of the hypothetical families**

Hypothetical family	Age of the reference person or child (and of the spouse, if applicable)	Gender of the reference person (and of the spouse, if applicable)	Labour force status of the reference person (and of the spouse, if applicable)	Private income, as a proportion of AWE of the year under study	Amount of rent paid per week (if applicable)
Single aged pensioner	70	Male	Not in the labour force	0	\$150
Couple aged pensioners	70 (65)	Male (Female)	Not in the labour force (not in the labour force)	0	\$150
Sole parents	35	Female	In the labour force	0%, 25%, 50%, and 75%	\$150 (\$170 from 2007/08 financial year)
First child of sole parent family	7	--	At school	0	Not relevant
Second child of sole parent family	5	--	At school	0	Not relevant

## 3. PRIVATE INCOMES

For the single and couple aged pensioners, their private income is set to zero, and for the sole parent, his/her private income is set to four proportions of average weekly earning (or AWE). These proportions are: 0%, 25%, 50%, and 75%.

The private incomes used for each year were based on Australian Bureau of Statistics (ABS) estimates of weekly average total earnings of males (ABS various years). Details of the AWE values are shown in Table 2.

**Table 2 Value of AWE for the selected years**

Time period	Original AWE	0% of AWE	25% of AWE	50% of AWE	75% of AWE
November 1994	643.1	0	--	--	--

November 1995	662.7	0	165.7	331.4	497.0
November 1997	709.3	0	177.3	354.7	532.0
November 1998	722.8	0	180.7	361.4	542.1
November 2000	769.5	0	192.4	384.8	577.1
November 2001	811.5	0	202.9	405.8	608.6
November 2003	894.6	0	223.7	447.3	671.0
November 2005	963.8	0	241.0	481.9	722.9
November 2007	1053.2	0	263.3	526.6	789.9
November 2008	1100.6	0	275.2	550.3	825.5

Source: ABS (various years)

### 3 TABLE NOTES

In interpreting the simulation results in the accompanying tables, the following notes should be taken into account:

- All income are expressed in weekly terms.
- Disposable income of each family at each level of income should equal private income plus transfer income minus income tax. However, due to rounding, this identity might not totally add up in some instances.
- While transfer payment rates are indexed quarterly, bi-annually or annually, the payment rates underlying the calculation of the transfer income in this analysis have been indexed using annual averages.
- For the simulation of three financial years: 1995/96, 1997/98, and 1998/99, the calculation of family payments required information on the family's previous year taxable income. Because this information was not available, the following strategies were used:
  - For the simulations for the 1995/96 financial year, the previous year taxable income (i.e. 1994/95) was estimated by deflating the family's private income of 1995/96 by the ratio of AWE at November 1995 (\$662.7) and AWE at November 1994 (\$643.1), which is 1.030477
  - For the simulations for the 1997/98 financial year, the taxable income of 1996/97 was estimated by inflating the taxable income of 1995/96 by the ratio of AWE at November 1996 (\$679.8) and AWE at November 1995 (\$662.7), which is 1.025804.
  - For the simulations for the 1998/99 financial year, the taxable income of the 1997/98 used estimates from the 1997/98 simulations.
- For families paying rent, the rent amounts were set sufficiently high to allow receipt of the maximum amount of rent assistance.

## REFERENCES

ABS (various years), 'Average Weekly Earnings, Australia', Publication No. 6302.0, Canberra, Australian Bureau of Statistics, Canberra.

Vu, Quoc Ng (2008) *STINMOD User Guide*, NATSEM, University of Canberra.

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**NO RENT**

Family type	Share of AWE	Income variables	1995/96	1997/98	1998/99	2000/01	2001/02	2003/04	2005/06	2007/08	2008/09
Single aged pensioner	0% of AWE	Private income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total tax paid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total transfer income	170.7	176.6	183.4	199.0	208.0	228.8	247.3	272.7	286.0
		Disposable income	170.7	176.6	183.4	199.0	208.0	228.8	247.3	272.7	286.0
Couple aged pensioners	0% of AWE	Private income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total tax paid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total transfer income	282.9	292.8	304.3	330.1	345.3	380.0	411.1	453.5	474.6
		Disposable income	282.9	292.8	304.3	330.1	345.3	380.0	411.1	453.5	474.6
Sole parent with two children (5&7)	0% of AWE	Private income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total tax paid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total transfer income	281.5	299.0	308.6	350.4	368.2	398.8	455.9	494.1	515.6
		Disposable income	281.5	299.0	308.6	350.4	368.2	398.8	455.9	494.1	515.6
	25% of AWE	Private income	165.7	177.3	180.7	192.4	202.9	223.7	241.0	263.3	275.2
		Total tax paid	0.0	0.0	0.0	16.3	12.2	13.5	14.7	6.2	0.0
		Total transfer income	234.2	247.4	255.2	304.5	319.3	343.2	394.2	425.0	442.9
		Disposable income	399.9	424.7	435.9	480.5	510.0	553.4	620.5	682.1	718.2
	50% of AWE	Private income	331.4	354.7	361.4	384.8	405.8	447.3	481.9	526.6	550.3
		Total tax paid	24.8	26.6	27.8	62.8	63.5	72.3	80.3	58.2	47.3
		Total transfer income	151.3	158.7	164.9	227.5	238.1	253.7	297.8	319.7	332.9
		Disposable income	457.9	486.8	498.5	549.5	580.5	628.8	699.4	788.1	835.9
	75% of AWE	Private income	497.0	532.0	542.1	577.1	608.6	671.0	722.9	789.9	825.5
		Total tax paid	70.1	83.8	89.3	112.2	122.1	137.8	148.1	139.1	131.5
		Total transfer income	93.5	98.5	91.6	141.0	149.9	151.9	192.3	221.5	228.2
		Disposable income	520.4	546.7	544.5	605.9	636.4	685.2	767.1	872.3	922.2

**FULL RENT**

Family type	Share of AWE	Income variables	1995/96	1997/98	1998/99	2000/01	2001/02	2003/04	2005/06	2007/08	2008/09
Single aged pensioner	0% of AWE	Private income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total tax paid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total transfer income	206.9	214.0	221.3	242.0	252.8	276.1	297.0	325.3	341.0
		Disposable income	206.9	214.0	221.3	242.0	252.8	276.1	297.0	325.3	341.0
Couple aged pensioners	0% of AWE	Private income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total tax paid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total transfer income	317.0	328.1	340.0	369.9	387.5	424.7	458.0	503.2	526.4
		Disposable income	317.0	328.1	340.0	369.9	387.5	424.7	458.0	503.2	526.4
Sole parent with two children (5&7)	0% of AWE	Private income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total tax paid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Total transfer income	323.7	342.7	352.9	400.7	420.7	454.3	514.3	556.0	580.1
		Disposable income	323.7	342.7	352.9	400.7	420.7	454.3	514.3	556.0	580.1
	25% of AWE	Private income	165.7	177.3	180.7	192.4	202.9	223.7	241.0	263.3	275.2
		Total tax paid	0.0	0.0	0.0	16.3	12.2	13.5	14.7	6.2	0.0
		Total transfer income	276.4	291.1	299.5	354.7	371.7	398.7	452.6	487.0	507.5
		Disposable income	442.1	468.4	480.2	530.8	562.5	608.9	678.9	744.1	782.7
	50% of AWE	Private income	331.4	354.7	361.4	384.8	405.8	447.3	481.9	526.6	550.3
		Total tax paid	24.8	26.6	27.8	62.8	63.5	72.3	80.3	58.2	47.3
		Total transfer income	193.5	202.4	209.2	277.8	290.6	309.2	356.2	381.6	397.4
		Disposable income	500.1	530.5	542.8	599.7	632.9	684.3	757.8	850.0	900.4
	75% of AWE	Private income	497.0	532.0	542.1	577.1	608.6	671.0	722.9	789.9	825.5
		Total tax paid	70.1	83.8	89.3	112.2	122.1	137.8	148.1	139.1	131.5
		Total transfer income	135.7	142.2	135.9	191.2	202.3	207.4	250.7	283.4	292.7
		Disposable income	562.6	590.4	588.8	656.2	688.8	740.7	825.5	934.2	986.7